MULTIMEDIA UNIVERSITY

STUDENT IDENTIFICATION NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2018/2019

BBF3124 – FINANCIAL DERIVATIVES

(All sections / Groups)

02nd MARCH 2019
2.30 p.m. – 4.30 p.m.
(2 Hours)

INSTRUCTIONS TO STUDENT

1. This Question paper consists of 4 pages with 4 Questions and 1 Cumulative Normal Distribution Table only.

2. Attempt all **FOUR** questions. The distribution of the marks for each question is given.

3. Please write all your answers in the Answer Booklet provided.

QUESTION 1

a) The key function of financial derivatives instruments is risk management, explain what the purpose of hedging is and why market players prefer to use futures contract over forward contract. Illustrate how to utilise the futures contracts if the asset price is expected to fall.

(10 marks)

b) Kelvin is a speculator with a margin account of RM 9,000 and one long gold futures contract. The futures contract is currently trading at RM 830.40 per ounce while yesterday it closed at RM 850.80. Assume that the contract size for gold futures contract is 100 ounces of gold and the initial and maintenance margin is RM 7,400, how much should the speculator add to the margin account?

(15 marks)

Total: 25 marks

QUESTION 2

a) Mr. Vincent, the treasurer of Goldsmith Finance Corporation has just determined that there will be a RM400 million shortage of fund for the company in three (3) months' time. That amount will have to be raised in the interbank market. Goldsmith's cost of fund is normally at the KLIBOR rate. Mr. Vincent is however worried about the potential rise in interest rate. Assuming the following quotations are available now:

1-month KLIBOR	3.8%
3-month KLIBOR	4%
Spot-month KLIBOR futures	95
3-month KLIBOR futures	98

i) Determine the interest rate that Mr. Vincent should aim to 'lock in'?

(2 marks)

ii) Outline and explain clearly on the hedging strategy that he should implement and how many contracts he should enter to the market?

(4 marks)

Continued...

iii) Assuming the spot 3-month KLIBOR is higher by 1.6% three (3) months later and that the spot and futures market converge, analyse the hedge and show that by using your strategy, calculate the net interest cost/profit.

(10 marks)

b) As an investment manager, you are expected to manage customers' stock portfolios including index arbitrage trading. The following quotes are now available:

KLCI Index	:	1,685 points
3-month SIF	:	1,650 points (maturing 30 days)
Risk free rate	:	3.6%
Dividend yield	:	2% p.a.

i) Prove that arbitrage is possible. Determine whether the Futures is underpriced or overpriced.

(4 marks)

ii) Outline an appropriate strategy.

(2 marks)

c) The usage of Stock Index Futures (SIF) contracts have been deemed popular due to its key benefits. Explain the key benefits in brief.

(3 marks)

Total: 25 marks

QUESTION 3

a) Due to the recent weather in Malaysia, you expect that the stock of Bouston Berhad, one of the largest oil palm plantation in Malaysia to continue trading in its current price range of RM 7.50 to RM 8.50. The 30-day, call and put options are quoted as follows:

Bouston Berhad, RM 8.50 call @ 0.15
Bouston Berhad, RM 7.50 put @ 0.20

i) What would be an appropriate strategy given your conviction of stock price movement? Justify your strategy.

(6 marks)

Continued...

ii) Form a payoff table and show graphically the strategy. Table the stock price from RM 6.50 to RM 10.00. Show in table and graphically the break-even points and maximum profits from the strategy.

(15 marks)

b) Given that the shares of Maxis Berhad is trading at RM 6.50 and put options for Maxis Berhad is RM 6.50 @ 0.20. Given that the view of the share is bullish. Outline the strategy with limited losses and unlimited profits.

(4 marks)

Total: 25 marks

QUESTION 4

a) TM Berhad is now trading at RM 7.00 per share and the exercise price of its 3-month calls with RM 6.00 exercise price on the stock is available. The risk free rate of interest expected to prevail is 3.5% per annum while estimate of the underlying stock volatility is 0.3. Using Black Scholes Option Pricing Model, calculate the call value.

(19 marks)

b) Explain in details what a naked position is and list down the **SIX (6)** positions available.

(6 marks)

Total: 25 marks

Continued...

Table: Cumulative Normal Distribution

d	N(d)	d	N(d)	d	N(d)	d	N(d)	d	N(d)	d	N(d)
−3.00	.0013	−1.58	.0571	−0.76	.2236	0.06	.5239	0.86	.8051	1.66	.9515
−2.95	.0016	−1.56	.0594	−0.74	.2297	0.08	.5319	0.88	.8106	1.68	.9535
−2.90	.0019	−1.54	.0618	−0.72	.2358	0.10	.5398	0.90	.8159	1.70	.9554
−2.85	.0022	−1.52	.0643	−0.70	.2420	0.12	.5478	0.92	.8212	1.72	.9573
−2.80	.0026	−1.50	.0668	−0.68	.2483	0.14	.5557	0.94	.8264	1.74	.9591
−2.75	.0030	−1.48	.0694	−0.66	.2546	0.16	.5636	0.96	.8315	1.76	.9608
−2.70	.0035	−1.46	.0721	−0.64	.2611	0.18	.5714	0.98	.8365	1.78	.9625
−2.65	.0040	−1.44	.0749	−0.62	.2676	0.20	.5793	1.00	.8414	1.80	.9641
−2.60	.0047	−1.42	.0778	−0.60	.2743	0.22	.5871	1.02	.8461	1.82	.9656
−2.55	.0054	−1.40	.0808	−0.58	.2810	0.24	.5948	1.04	.8508	1.84	.9671
−2.50	.0062	−1.38	.0838	−0.56	.2877	0.26	.6026	1.06	.8554	1.86	.9686
−2.45	.0071	−1.36	.0869	−0.54	.2946	0.28	.6103	1.08	.8599	1.88	.9699
−2.40	.0082	−1.34	.0901	−0.52	.3015	0.30	.6179	1.10	.8643	1.90	.9713
−2.35	.0094	−1.32	.0934	−0.50	.3085	0.32	.6255	1.12	.8686	1.92	.9726
−2.30	.0107	−1.30	.0968	−0.48	.3156	0.34	.6331	1.14	.8729	1.94	.9738
−2.25	.0122	−1.28	.1003	−0.46	.3228	0.36	.6406	1.16	.8770	1.96	.9750
−2.20	.0139	−1.26	.1038	−0.44	.3300	0.38	.6480	1.18	.8810	1.98	.9761
−2.15	.0158	−1.24	.1075	−0.42	.3373	0.40	.6554	1.20	.8849	2.00	.9772
−2.10	.0179	−1.22	.1112	−0.40	.3446	0.42	.6628	1.22	.8888	2.05	.9798
−2.05	.0202	−1.20	.1151	−0.38	.3520	0.44	.6700	1.24	.8925	2.10	.9821
−2.00	.0228	−1.18	.1190	−0.36	.3594	0.46	.6773	1.26	.8962	2.15	.9842
−1.98	.0239	−1.16	.1230	−0.34	.3669	0.48	.6844	1.28	.8997	2.20	.9861
−1.96	.0250	−1.14	.1271	−0.32	.3745	0.50	.6915	1.30	.9032	2.25	.9878
−1.94	.0262	−1.12	.1314	−0.30	.3821	0.52	.6985	1.32	.9066	2.30	.9893
−1.92	.0274	−1.10	.1357	−0.28	.3897	0.54	.7054	1.34	.9099	2.35	.9906
−1.90	.0287	−1.08	.1401	−0.26	.3974	0.56	.7123	1.36	.9131	2.40	.9918
−1.88	.0301	−1.06	.1446	−0.24	.4052	0.58	.7191	1.38	.9162	2.45	.9929
−1.86	.0314	−1.04	.1492	−0.22	.4129	0.60	.7258	1.40	.9192	2.50	.9938
−1.84	.0329	−1.02	.1539	−0.20	.4207	0.62	.7324	1.42	.9222	2.55	.9946
−1.82	.0344	−1.00	.1587	−0.18	.4286	0.64	.7389	1.44	.9251	2.60	.9953
−1.80	.0359	−0.98	.1635	−0.16	.4365	0.66	.7454	1.46	.9279	2.65	.9960
−1.78	.0375	−0.96	.1685	−0.14	.4443	0.68	.7518	1.48	.9306	2.70	.9965
−1.76	.0392	−0.94	.1736	−0.12	.4523	0.70	.7580	1.50	.9332	2.75	.9970
−1.74	.0409	−0.92	.1788	−0.10	.4602	0.72	.7642	1.52	.9357	2.80	.9974
−1.72	.0427	−0.90	.1841	−0.08	.4681	0.74	.7704	1.54	.9382	2.85	.9978
−1.70	.0446	−0.88	.1894	−0.06	.4761	0.76	.7764	1.56	.9406	2.90	.9981
−1.68	.0465	−0.86	.1949	−0.04	.4841	0.78	.7823	1.58	.9429	2.95	.9984
−1.66	.0485	−0.84	.2005	−0.02	.4920	0.80	.7882	1.60	.9452	3.00	.9986
−1.64	.0505	−0.82	.2061	0.00	.5000	0.82	.7939	1.62	.9474	3.05	.9989
−1.62	.0526	−0.80	.2119	0.02	.5080	0.84	.7996	1.64	.9495		
−1.60	.0548	−0.78	.2177	0.04	.5160						

This table shows the probability [N(d)] of observing a value less than or equal to d. For example, as illustrated, if d is −.24, then N(d) is .4052.

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